Otmar Scherzer

List of Publications by Year
in descending order

135 papers	3,782 citations	201385 27 h-index	168136 53 g-index
141 all docs	141 docs citations	141 times ranked	1554 citing authors

#	Article	IF	Citations
1	A convergence analysis of the Landweber iteration for nonlinear ill-posed problems. Numerische Mathematik, 1995, 72, 21-37.	0.9	492
2	On convergence rates for the iteratively regularized Gauss-newton method. IMA Journal of Numerical Analysis, 1997, 17, 421-436.	1.5	216
3	Inverse Problems Light: Numerical Differentiation. American Mathematical Monthly, 2001, 108, 512-521.	0.2	140
4	Inverse Problems Light: Numerical Differentiation. American Mathematical Monthly, 2001, 108, 512.	0.2	133
5	Sparse regularization with l ^q penalty term. Inverse Problems, 2008, 24, 055020.	1.0	132
6	Relations Between Regularization and Diffusion Filtering. Journal of Mathematical Imaging and Vision, 2000, 12, 43-63.	0.8	121
7	A convergence analysis of iterative methods for the solution of nonlinear ill-posed problems under affinely invariant conditions. Inverse Problems, 1998, 14, 1081-1106.	1.0	113
8	Thermoacoustic tomography with integrating area and line detectors. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2005, 52, 1577-1583.	1.7	100
9	Error estimates for non-quadratic regularization and the relation to enhancement. Inverse Problems, 2006, 22, 801-814.	1.0	96
10	Necessary and sufficient conditions for linear convergence of â„“1-regularization. Communications on Pure and Applied Mathematics, 2011, 64, 161-182.	1.2	88
11	Impedance-Acoustic Tomography. SIAM Journal on Applied Mathematics, 2008, 69, 565-576.	0.8	85
12	THERMOACOUSTIC TOMOGRAPHY AND THE CIRCULAR RADON TRANSFORM: EXACT INVERSION FORMULA. Mathematical Models and Methods in Applied Sciences, 2007, 17, 635-655.	1.7	78
13	Local analysis of inverse problems: HÃ¶lder stability and iterative reconstruction. Inverse Problems, 2012, 28, 045001.	1.0	53
14	Finite-dimensional approximation of tikhonov regularized solutions of non-linear ill-posed problems. Numerical Functional Analysis and Optimization, 1990, 11, 85-99.	0.6	51
15	Hybrid tomography for conductivity imaging. Inverse Problems, 2012, 28, 084008.	1.0	49
16	A direct method for photoacoustic tomography with inhomogeneous sound speed. Inverse Problems, 2016, 32, 045005.	1.0	49
17	Error Analysis of an Equation Error Method for the Identification of the Diffusion Coefficient in a Quasi-linear Parabolic Differential Equation. SIAM Journal on Applied Mathematics, 1998, 59, 1012-1027.	0.8	47
18	Shape Metrics Based on Elastic Deformations. Journal of Mathematical Imaging and Vision, 2009, 35, 86-102.	0.8	47

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19	Analysis of regularized total variation penalty methods for denoising. Inverse Problems, 1996, 12, 601-617.	1.0	46
20	Using the Complex Ginzburg-Landau Equation for Digital Inpainting in 2D and 3D. Lecture Notes in Computer Science, 2003, , 225-236.	1.0	44
21	A Reconstruction Algorithm for Photoacoustic Imaging Based on the Nonuniform FFT. IEEE Transactions on Medical Imaging, 2009, 28, 1727-1735.	5.4	39
22	Tube Methods for BV Regularization. Journal of Mathematical Imaging and Vision, 2003, 19, 219-235.	0.8	37
23	Local ill-posedness and source conditions of operator equations in Hilbert spaces. Inverse Problems, 1998, 14, 1189-1206.	1.0	34
24	The residual method for regularizing ill-posed problems. Applied Mathematics and Computation, 2011, 218, 2693-2710.	1.4	31
25	Simultaneous Reconstructions of Absorption Density and Wave Speed with Photoacoustic Measurements. SIAM Journal on Applied Mathematics, 2012, 72, 1508-1523.	0.8	31
26	An iterative multi level algorithm for solving nonlinear ill-posed problems. Numerische Mathematik, 1998, 80, 579-600.	0.9	30
27	Regularization of ill-posed linear equations by the non- stationary augmented Lagrangian method. Journal of Integral Equations and Applications, 2010, 22, .	0.2	29
28	The Levenbergâ€“Marquardt iteration for numerical inversion of the power density operator. Journal of Inverse and Ill-Posed Problems, 2013, 21, .	0.5	26
29	An analysis of a multi-level projected steepest descent iteration for nonlinear inverse problems in Banach spaces subject to stability constraints. Numerische Mathematik, 2015, 129, 127-148.	0.9	26
30	Scale-Space Properties of Nonstationary Iterative Regularization Methods. Journal of Visual Communication and Image Representation, 2000, 11, 96-114.	1.7	23
31	The CMA-ES on Riemannian Manifolds to Reconstruct Shapes in 3-D Voxel Images. IEEE Transactions on Evolutionary Computation, 2010, 14, 227-245.	7.5	22
32	Detecting Interfaces in a Parabolicâ€Elliptic Problem from Surface Measurements. SIAM Journal on Numerical Analysis, 2007, 45, 810-836.	1.1	20
33	Inverse Boundary Value Problem For The Helmholtz Equation: Quantitative Conditional Lipschitz Stability Estimates. SIAM Journal on Mathematical Analysis, 2016, 48, 3962-3983.	0.9	20
34	Discretization of variational regularization in Banach spaces. Inverse Problems, 2010, 26, 105017.	1.0	19
35	On the use of frequency-domain reconstruction algorithms for photoacoustic imaging. Journal of Biomedical Optics, 2011, 16, 086002.	1.4	19
36	Attenuation Models in Photoacoustics. Lecture Notes in Mathematics, 2012, , 85-130.	0.1	19

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37	Regularization for Curve Representations: Uniform Convergence for Discontinuous Solutions of Ill-Posed Problems. SIAM Journal on Applied Mathematics, 1998, 58, 1891-1900.	0.8	18
38	The Construction of Orthonormal Wavelets Using Symbolic Methods and a Matrix Analytical Approach for Wavelets on the Interval. Experimental Mathematics, 2001, 10, 67-86.	0.5	18
39	Causality analysis of frequency-dependent wave attenuation. Mathematical Methods in the Applied Sciences, 2011, 34, 108-124.	1.2	18
40	LamÃ© Parameter Estimation from Static Displacement Field Measurements in the Framework of Nonlinear Inverse Problems. SIAM Journal on Imaging Sciences, 2018, 11, 1268-1293.	1.3	18
41	Regularization Methods for Blind Deconvolution and Blind Source Separation Problems. Mathematics of Control, Signals, and Systems, 2001, 14, 358-383.	1.4	17
42	Circular integrating detectors in photo and thermoacoustic tomography. Inverse Problems in Science and Engineering, 2009, 17, 133-142.	1.2	16
43	Reconstruction formulas for photoacoustic sectional imaging. Inverse Problems, 2012, 28, 045004.	1.0	16
44	Stability in the linearized problem of quantitative elastography. Inverse Problems, 2015, 31, 035005.	1.0	16
45	Exact series reconstruction in photoacoustic tomography with circular integrating detectors. Communications in Mathematical Sciences, 2009, 7, 665-678.	0.5	15
46	Generalized Convergence Rates Results for Linear Inverse Problems in Hilbert Spaces. Numerical Functional Analysis and Optimization, 2015, 36, 549-566.	0.6	14
47	Fast Parallel Algorithms for a Broad Class of Nonlinear Variational Diffusion Approaches. Real Time Imaging, 2001, 7, 31-45.	1.6	13
48	Scale-Space Methods and Regularization for Denoising and Inverse Problems. Advances in Imaging and Electron Physics, 2003, 128, 445-530.	0.1	13
49	On the X-ray transform of planar symmetric 2-tensors. Journal of Mathematical Analysis and Applications, 2016, 442, 31-49.	0.5	13
50	A posteriori error estimates for the solution of nonlinear ill-posed operator equations. Nonlinear Analysis: Theory, Methods & Applications, 2001, 45, 459-481.	0.6	12
51	Analysis of Iterative Methods for Solving a Ginzburg-Landau Equation. International Journal of Computer Vision, 2005, 64, 203-219.	10.9	12
52	Exact reconstruction in photoacoustic tomography with circular integrating detectors II: Spherical geometry. Mathematical Methods in the Applied Sciences, 2010, 33, 1771-1782.	1.2	12
53	Partial Differential Equations for Zooming, Deinterlacing andÂDejittering. International Journal of Computer Vision, 2011, 92, 162-176.	10.9	12
54	Exact solutions of one-dimensional total generalized variation. Communications in Mathematical Sciences, 2015, 13, 171-202.	0.5	12

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55	The Use of Tikhonov Regularization in the Identification of Electrical Conductivities from Overdetermined Boundary Data. Resultate Der Mathematik, 1992, 22, 598-618.	0.2	11
56	Decomposition of optical flow on the sphere. GEM - International Journal on Geomathematics, 2014, 5, 117-141.	0.7	11
57	Dual evolution of planar parametric spline curves and -spline level sets. CAD Computer Aided Design, 2008, 40, 13-24.	1.4	10
58	The effect of cinematic cuts on human attention. , 2014, , .		10
59	Optical Flow on Evolving Surfaces with Space and Time Regularisation. Journal of Mathematical Imaging and Vision, 2015, 52, 55-70.	0.8	10
60	Inverse problems of combined photoacoustic and optical coherence tomography. Mathematical Methods in the Applied Sciences, 2017, 40, 505-522.	1.2	10
61	A note on convergence of solutions of total variation regularized linear inverse problems. Inverse Problems, 2018, 34, 055011.	1.0	10
62	Adjoint-state method for Hybridizable Discontinuous Galerkin discretization, application to the inverse acoustic wave problem. Computer Methods in Applied Mechanics and Engineering, 2020, 372, 113406.	3.4	10
63	A variational setting for volume constrained image registration. Inverse Problems and Imaging, 2010, 4, 505-522.	0.6	10
64	Data driven regularization by projection. Inverse Problems, 2020, 36, 125009.	1.0	10
65	A multi-level algorithm for the solution of moment problems. Numerical Functional Analysis and Optimization, 1998, 19, 353-375.	0.6	9
66	Nonequispaced grid sampling in photoacoustics with a nonuniform fast Fourier transform. Journal of Biomedical Optics, 2016, 21, 015005.	1.4	9
67	Critical Yield Numbers of Rigid Particles Settling in Bingham Fluids and Cheeger Sets. SIAM Journal on Applied Mathematics, 2017, 77, 638-663.	0.8	9
68	Shape-Aware Matching of Implicit Surfaces Based on Thin Shell Energies. Foundations of Computational Mathematics, 2018, 18, 891-927.	1.5	9
69	Eigenvector models for solving the seismic inverse problem for the Helmholtz equation. Geophysical Journal International, 2020, 221, 394-414.	1.0	9
70	Reciprocity-gap misfit functional for distributed acoustic sensing, combining data from passive and active sources. Geophysics, 2021, 86, R211-R220.	1.4	9
71	Mathematical Methods of Optical Coherence Tomography. , 2015, , 1169-1204.		9
72	A variational algorithm for the detection of line segments. Inverse Problems and Imaging, 2014, 8, 389-408.	0.6	9

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73	Photoacoustic imaging in attenuating acoustic media based on strongly causal models. Mathematical Methods in the Applied Sciences, 2013, 36, 2254-2264.	1.2	8
74	Convergence Rates of First- and Higher-Order Dynamics for Solving Linear Ill-Posed Problems. Foundations of Computational Mathematics, 2022, 22, 1567-1629.	1.5	8
75	Optical Flow on Evolving Surfaces with an Application to the Analysis of 4D Microscopy Data. Lecture Notes in Computer Science, 2013, , 246-257.	1.0	8
76	Identifiability and reconstruction of shapes from integral invariants. Inverse Problems and Imaging, 2008, 2, 341-354.	0.6	8
77	A Fast and Robust Algorithm for 2D/3D Panorama Ultrasound Data. Real Time Imaging, 2002, 8, 53-60.	1.6	7
78	Bivariate density estimation using BV regularisation. Computational Statistics and Data Analysis, 2007, 51, 5622-5634.	0.7	7
79	Regularized Reconstruction of Shapes with Statistical aÂprioriÂKnowledge. International Journal of Computer Vision, 2008, 79, 119-135.	10.9	7
80	Shape Reconstruction with A Priori Knowledge Based on Integral Invariants. SIAM Journal on Imaging Sciences, 2012, 5, 726-745.	1.3	7
81	Singular values of the attenuated photoacoustic imaging operator. Journal of Differential Equations, 2017, 263, 5330-5376.	1.1	7
82	Fourier reconstruction for diffraction tomography of an object rotated into arbitrary orientations. Inverse Problems, 2021, 37, 115002.	1.0	7
83	An approach to the minimization of the Mumfordâ€“Shah functional using $Gamma$-convergence and topological asymptotic expansion. Interfaces and Free Boundaries, 2013, 15, 141-166.	0.2	7
84	Symbolic Computation for Moments and Filter Coefficients of Scaling Functions. Annals of Combinatorics, 2005, 9, 223-243.	0.3	6
85	Taut-String Algorithm and Regularization Programs with G-Norm Data Fit. Journal of Mathematical Imaging and Vision, 2005, 23, 135-143.	0.8	6
86	Derivatives of isogeometric functions on n-dimensional rational patches in <mml:math altimg="si1.gif" overflow="scroll" xmlns:xocs="http://www.elsevier.com/xml/xocs/dtd" xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.elsevier.com/xml/ja/dtd" xmlns:ja="http://www.elsevier.com/xml/ja/dtd" xmlns:mml="http://www.w3.org/1998/Math/MathML" xmlns:tb="http://www.elsevier.com/xml/common/table/dtd" xmlns:sb="http://www.elsevier.com/xml/co	0.5	6
87	A Geometric PDE for Interpolation of M-Channel Data. Lecture Notes in Computer Science, 2009, , 413-425.	1.0	6
88	Texture Generation for Photoacoustic Elastography. Journal of Mathematical Imaging and Vision, 2015, 52, 369-384.	0.8	5
89	Sparsity in Inverse Geophysical Problems. , 2010, , 763-784.		5
90	On a Decomposition Model for Optical Flow. Lecture Notes in Computer Science, 2009, , 126-139.	1.0	5

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91	Stable Approximations of a Minimal Surface Problem with Variational Inequalities. Abstract and Applied Analysis, 1997, 2, 137-161.	0.3	4
92	A Non-convex PDE Scale Space. Lecture Notes in Computer Science, 2005, , 303-315.	1.0	4
93	Finite-dimensional approximation of convex regularization via hexagonal pixel grids. Applicable Analysis, 2015, 94, 612-636.	0.6	4
94	The first 100 years of the Radon transform. Inverse Problems, 2018, 34, 090201.	1.0	4
95	Preconditioning inverse problems for hyperbolic equations with applications to photoacoustic tomography. Inverse Problems, 2020, 36, 014002.	1.0	4
96	Motion reconstruction for optical tomography of trapped objects. Inverse Problems, 2020, 36, 044004.	1.0	4
97	The Tangential Cone Condition for Some Coefficient Identification Model Problems in Parabolic PDEs. , 2021, , 121-163.		4
98	Displacement field estimation from OCT images utilizing speckle information with applications in quantitative elastography. Inverse Problems, 2020, 36, 124003.	1.0	4
99	Optical flow on evolving sphere-like surfaces. Inverse Problems and Imaging, 2017, 11, 305-338.	0.6	4
100	Infinite Dimensional Optimization Models and PDEs for Dejittering. Lecture Notes in Computer Science, 2015, , 678-689.	1.0	4
101	Segmenting surfaces of arbitrary topology: a two-step approach. , 2007, , .		3
102	Quantitative photoacoustic imaging in the acoustic regime using SPIM. Inverse Problems, 2018, 34, 054003.	1.0	3
103	The inverse scattering problem for orthotropic media in polarization-sensitive optical coherence tomography. GEM - International Journal on Geomathematics, 2018, 9, 145-165.	0.7	3
104	Reconstruction formulas for photoacoustic imaging in attenuating media. Inverse Problems, 2018, 34, 015006.	1.0	3
105	Regularization with Metric Double Integrals of Functions with Values in a Set of Vectors. Journal of Mathematical Imaging and Vision, 2019, 61, 824-848.	0.8	3
106	Asymptotic Expansions for Higher Order Elliptic Equations with an Application to Quantitative Photoacoustic Tomography. SIAM Journal on Imaging Sciences, 2020, 13, 1781-1833.	1.3	3
107	A workflow for sizing oligomeric biomolecules based on cryo single molecule localization microscopy. PLoS ONE, 2021, 16, e0245693.	1.1	3
108	<title>Reconstruction of discontinuous solutions from blurred data</title>. , 1997, , .		3

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109	A Combinatorial Method for Topology Adaptations in 3D Deformable Models. International Journal of Computer Vision, 2010, 87, 304-315.	10.9	2
110	Photoacoustic tomography with spatially varying compressibility and density. Journal of Inverse and Ill-Posed Problems, 2017, 25, 119-133.	0.5	2
111	Convergence rates for regularization functionals with polyconvex integrands. Inverse Problems, 2017, 33, 085008.	1.0	2
112	Invariant $varphi$-Minimal Sets and Total Variation Denoising on Graphs. SIAM Journal on Imaging Sciences, 2019, 12, 1643-1668.	1.3	2
113	Preservation of Piecewise Constancy under TV Regularization with Rectilinear Anisotropy. Lecture Notes in Computer Science, 2019, , 510-521.	1.0	2
114	Critical Yield Numbers and Limiting Yield Surfaces of Particle Arrays Settling in a Bingham Fluid. Applied Mathematics and Optimization, 2020, 82, 399-432.	0.8	2
115	Challenges for Optical Flow Estimates in Elastography. Lecture Notes in Computer Science, 2021, , 128-139.	1.0	2
116	Wavelets with Scale Dependent Properties. Lecture Notes in Computer Science, 2003, , 255-265.	1.0	2
117	Tomography, Photoacoustic, and Thermoacoustic. , 2015, , 1488-1496.		2
118	Shape spaces via medial axis transforms for segmentation of complex geometry in 3D voxel data. Inverse Problems and Imaging, 2013, 7, 1-25.	0.6	2
119	Convergence of Tikhonov regularization for solving ill--posed operator equations with solutions defined on surfaces. Inverse Problems and Imaging, 2017, 11, 221-246.	0.6	2
120	Regularization with metric double integrals for vector tomography. Journal of Inverse and Ill-Posed Problems, 2020, 28, 857-875.	0.5	2
121	Application of Non-Convex BV Regularization for Image Segmentation. Mathematics and Visualization, 2007, , 211-228.	0.4	1
122	Evolution by Non-Convex Functionals. Numerical Functional Analysis and Optimization, 2010, 31, 489-517.	0.6	1
123	Convergence of variational regularization methods for imaging on Riemannian manifolds. Inverse Problems, 2012, 28, 015007.	1.0	1
124	6. A variational method for quantitative photoacoustic tomography with piecewise constant coefficients. , 2016, , 202-224.		1
125	Sparsity in Inverse Geophysical Problems. , 2015, , 1659-1687.		1
126	Analytical Evaluations of Double Integral Expressions Related to Total Variation. Texts and Monographs in Symbolic Computation, 2012, , 193-218.	0.4	1

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127	The Inverse Scattering Problem in Optical Coherence Tomography. , 2016, , .		1
128	Computed Origami Tomography. SIAM Review, 2022, 64, 469-484.	4.2	1
129	A Range Condition for Polyconvex Variational Regularization. Numerical Functional Analysis and Optimization, 2018, 39, 1064-1076.	0.6	0
130	Sparsity in Inverse Geophysical Problems. , 2013, , 1-25.		0
131	Scale and Edge Detection with Topological Derivatives. Lecture Notes in Computer Science, 2013, , 404-415.	1.0	0
132	Nonlinear Flows for Displacement Correction and Applications in Tomography. Lecture Notes in Computer Science, 2017, , 283-294.	1.0	0
133	On a spatial-temporal decomposition of optical flow. Inverse Problems and Imaging, 2017, 11, 761-781.	0.6	0
134	Modeling polarization-sensitive OCT using inverse scattering techniques. , 2017, , .		0
135	Diffusion tensor regularization with metric double integrals. Journal of Inverse and Ill-Posed Problems, 2020, .	0.5	0